Work Order ID 101020

April-30-13 2:38:25 PM

101020

Item ID: D2877 **Accept** *N900040100* **Setup** **Start** *NS1*

Revision ID:

Item Name: Saddle Spacer **Stop** *NS2*

Start Date: 4/30/13 **Start Qty:** 24.00 *24* **Cust Item ID:**

Required Date: 4/30/13 **Req'd Qty:** 24.00 *24* **Customer:**

Reference:

Run **Start** *NR1*

Approvals: **Process Plan:** MLJ **Date:** 13-05-02 **Tooling:** ____ **Date:** ____

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr D2877	**Revision Nbr** Rev B								
100 *100* Waterjet FLOW CNC Waterjet 6061.125	FLOW WATER JET **Memo** 1-Cut as per Dwg D2877 Dwg Rev: B Prog Rev: B 2-deburr	0.00 0.00				24	0		JM 13-5-26
110 *110* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB **Memo**	0.00 0.00				24	0		JM 13-5-26
120 *120* QC Quality Control	QC8- Inspect parts - second check **Memo**	0.00 0.00 DAS 27 13 5 27				24			

DQA: ________ Date: ________________

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ________ Part No. ________ NCR No. ________	**DISPOSITION**	**AGAINST DEPARTMENT/PROCESS**
	Rework ☐ Scrap ☐ Use-as-is ☐ Work Order Update ☐	Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear	General			
☐ Bending	☐ Bend	☐ Grain	☐ Ovalized	☐ Pressure/Forced
☐ Centre Not Concentric to O/S	☐ BOM/Route	☐ Hardware	☐ Over/Under tolerance	☐ Temperature/Cure
☐ Cracks	☐ Broken/Damaged	☐ Inspection Incomplete	☐ Part Incorrect	☐ Weld
☐ Crushed/Crimped	☐ Burrs	☐ Instructions Incomplete/Unclear	☐ Part Lost/Missing	☐ Wrong Stock Pulled
☐ Cuffs	☐ Contamination	☐ Maintenance	☐ Part Moved	
☐ Heat Treat	☐ Countersink	☐ Mislabeled	☐ Positioned Wrong	
☐ Inspection Strip in Tube	☐ Cut Too Short	☐ Misread	☐ Power Loss/Surge	☐ Other
☐ Ripples in Bend	☐ Drill Holes	☐ Offset	________	
☐ Torque Waves in Extrusion	☐ Drawing	☐ Out of Calibration	________	
☐ Turning Sequence	☐ Finish	☐ Out of Sequence	________	
☐ Wave/Twist in Tube	☐ Folio	☐ Outside Dimensions		

Work Order ID 101020

April-30-13 2:38:25 PM

101020

Item ID: D2877

Revision ID:

Item Name: Saddle Spacer

Accept *N900040100*

Setup **Start** *NS1*

Stop *NS2*

Start Date: 4/30/13 **Start Qty:** 24.00 *24*

Required Date: 4/30/13 **Req'd Qty:** 24.00 *24*

Cust Item ID:

Customer:

Reference:

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Run **Start** *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* Small Fab Small Fab	Small Fab **Memo** Deburr if necessary	0.00 0.00 N/A							
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 **Memo**	0.00 0.00				24	BS 28		
150 *150* QC Quality Control	QC3- Inspect Part Finish **Memo**	0.00 DAS 27 0.00 BS 28				24			

DQA: ________ Date: ____________

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________ Part No. ____________ NCR No. ____________	**DISPOSITION** Rework ☐ Scrap ☐ Use-as-is ☐ Work Order Update ☐	**AGAINST DEPARTMENT/PROCESS** Skid-tube ☐ Crosstube ☐ Water Jet ☐ Engineering ☐ Machining ☐ Small Fab ☐ Prod. Eng. Coor. ☐ Quality ☐ Thermoforming ☐ Finishing ☐ Rec/Store/Packaging ☐ Other ☐ Large Fab ☐ Composite ☐ Supplier ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear	**General**			
☐ Bending	☐ Bend	☐ Grain	☐ Ovalized	☐ Pressure/Forced
☐ Centre Not Concentric to O/S	☐ BOM/Route	☐ Hardware	☐ Over/Under tolerance	☐ Temperature/Cure
☐ Cracks	☐ Broken/Damaged	☐ Inspection Incomplete	☐ Part Incorrect	☐ Weld
☐ Crushed/Crimped	☐ Burrs	☐ Instructions Incomplete/Unclear	☐ Part Lost/Missing	☐ Wrong Stock Pulled
☐ Cuffs	☐ Contamination	☐ Maintenance	☐ Part Moved	
☐ Heat Treat	☐ Countersink	☐ Mislabeled	☐ Positioned Wrong	
☐ Inspection Strip in Tube	☐ Cut Too Short	☐ Misread	☐ Power Loss/Surge	☐ Other
☐ Ripples in Bend	☐ Drill Holes	☐ Offset	____________	
☐ Torque Waves in Extrusion	☐ Drawing	☐ Out of Calibration	____________	
☐ Turning Sequence	☐ Finish	☐ Out of Sequence	____________	
☐ Wave/Twist in Tube	☐ Folio	☐ Outside Dimensions		

Work Order ID 101020 *101020*

April-30-13 2:38:25 PM

Item ID: D2877 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Saddle Spacer **Stop** *NS2*

Start Date: 4/30/13 **Start Qty:** 24.00 *24* **Cust Item ID:**

Required Date: 4/30/13 **Req'd Qty:** 24.00 *24* **Customer:**

Reference:

Run Start *NR1*

Approvals: **Process Plan:** ________ **Date:** ________ **Tooling:** ________ **Date:** ________

QC: ________ **Date:** ________ **SPC (Y/N):** ________ **Date:** ________

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* Packaging Packaging	Identify as per dwg & Stock Location: STO20 Memo	0.00 0.00				24X	N.D.		13-05-30
170 *170* QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00					13/5/31		

ME
13-5-30

DQA: ________ Date: ____________

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________ Part No. ____________ NCR No. ____________	**DISPOSITION**	**AGAINST DEPARTMENT/PROCESS**
	Rework ☐ Scrap ☐ Use-as-is ☐ Work Order Update ☐	Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Crosstube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coor. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐ ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unapproved	☐									

FAULT CATEGORY

Landing Gear	General			
☐ Bending	☐ Bend	☐ Grain	☐ Ovalized	☐ Pressure/Forced
☐ Centre Not Concentric to O/S	☐ BOM/Route	☐ Hardware	☐ Over/Under tolerance	☐ Temperature/Cure
☐ Cracks	☐ Broken/Damaged	☐ Inspection Incomplete	☐ Part Incorrect	☐ Weld
☐ Crushed/Crimped	☐ Burrs	☐ Instructions Incomplete/Unclear	☐ Part Lost/Missing	☐ Wrong Stock Pulled
☐ Cuffs	☐ Contamination	☐ Maintenance	☐ Part Moved	
☐ Heat Treat	☐ Countersink	☐ Mislabeled	☐ Positioned Wrong	
☐ Inspection Strip in Tube	☐ Cut Too Short	☐ Misread	☐ Power Loss/Surge	☐ Other
☐ Ripples in Bend	☐ Drill Holes	☐ Offset		
☐ Torque Waves in Extrusion	☐ Drawing	☐ Out of Calibration		
☐ Turning Sequence	☐ Finish	☐ Out of Sequence		
☐ Wave/Twist in Tube	☐ Folio	☐ Outside Dimensions		

Picklist Print

April-30-13 2:38:25 PM

Work Order ID: 101020

Parent Item: D2877

Parent Item Name: Saddle Spacer

Start Date: 4/30/13 **Required Date:** 4/30/13

Start Qty: 24.00 **Required Qty:** 24.00

Comments:
IPP B 00.05.19Added inspect level 8EC
IPP C 06.04.26 Water jet EC
IPP Rev:D Now M6061-T6 06-06-23 JLM
IPP Rev:E Updated Thickness as per Rev B 06-09-18 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6S.125 6061-T6 .125 Sheet		Purchased	No			110	sf	188.6062	**0.0607**	~~1.5334~~728 1.6		JM 3.5.26	

Location	Loc Qty	Loc Code	
MAT021	188.6061578		
121473	0.9161578		
123279	72.89		
125257	114.8		125257.

DQA: ________ Date: ______________

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: ____________	**DISPOSITION**	**AGAINST DEPARTMENT/PROCESS**			
Part No. ____________	Rework ☐	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
NCR No. ____________	Scrap ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coor. ☐	Quality ☐
	Use-as-is ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
	Work Order Update ☐	Large Fab ☐	Composite ☐	Supplier ☐	☐

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data ☐									
Equip/Tooling ☐									
Operator ☐									
Material ☐									
Setup ☐									
Other ☐									
Process ☐									
Supplier ☐									
Training ☐									
Unapproved ☐									

FAULT CATEGORY

Landing Gear	General			
☐ Bending	☐ Bend	☐ Grain	☐ Ovalized	☐ Pressure/Forced
☐ Centre Not Concentric to O/S	☐ BOM/Route	☐ Hardware	☐ Over/Under tolerance	☐ Temperature/Cure
☐ Cracks	☐ Broken/Damaged	☐ Inspection Incomplete	☐ Part Incorrect	☐ Weld
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☐ Cuffs	☐ Contamination	☐ Maintenance	☐ Part Moved	
☐ Heat Treat	☐ Countersink	☐ Mislabeled	☐ Positioned Wrong	
☐ Inspection Strip in Tube	☐ Cut Too Short	☐ Misread	☐ Power Loss/Surge	☐ Other
☐ Ripples in Bend	☐ Drill Holes	☐ Offset	____________	
☐ Torque Waves in Extrusion	☐ Drawing	☐ Out of Calibration	____________	
☐ Turning Sequence	☐ Finish	☐ Out of Sequence	____________	
☐ Wave/Twist in Tube	☐ Folio	☐ Outside Dimensions		

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	101026
Description: Saddle Spacer	Part Number:	D2877
Inspection Dwg: D2877 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[X] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.98	+/-0.030	0.985"	–		V	J4-M01
R0.06	+/-0.030	0.06"	–		RG	
R0.30	+/-0.030	0.30"	–		RG	
1.00	+/-0.030	1.006"	–		V	
0.250	+0.030/-0.000	0.261"	–		V	
Ø0.257	+0.005/-0.000	0.257"	–		V	
0.125 thick	+/-0.005	0.122"	–		V	

Measured by:	JM
Date:	13-5-26

Audited by:	[illegible]
Date:	13 5 27

Prototype Approval:	N/A
Date:	N/A

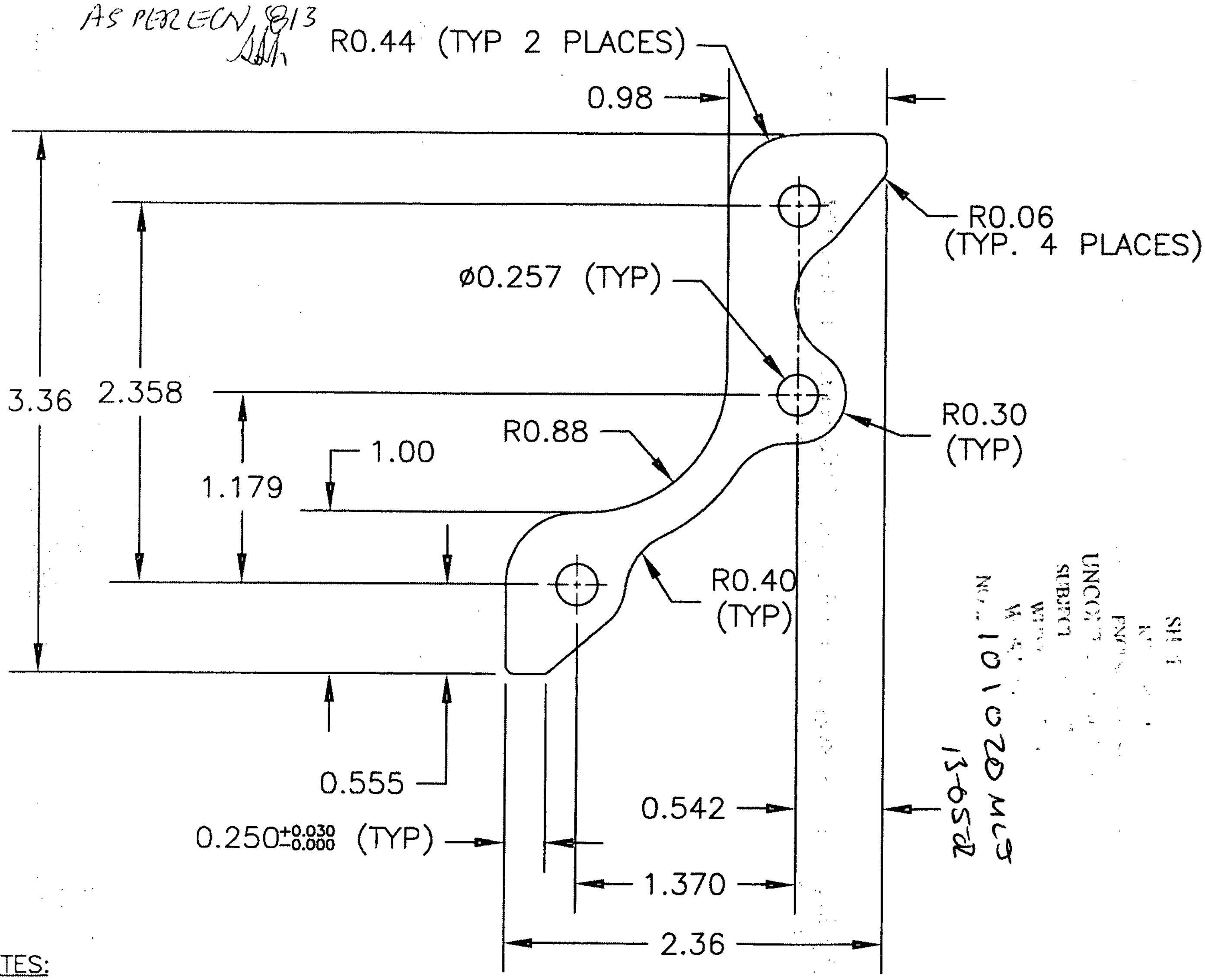
Rev	Date	Change	Revised by	Approved
A	04.01.21	New Issue	KJ/RF	
B	06.06.23	Dwg Rev. changed	KJ/JLM [signature]	[signature]

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2877 — REV. B — SHEET 1 OF 1
DATE 06.05.17		TITLE SADDLE SPACER — SCALE 1:1

A	99.02.23	NEW ISSUE
B	06.05.17	THICKNESS WAS 0.100", MAT CHANGE

RELEASED 06.06.22
AS PER ECN 813



NOTES:

1) MATERIAL: 6061–T6 ALUMINUM SHEET (QQ–A–250/11) 0.125" THICK
   (REF DART SPEC M6061T6S.125)
   OR
   5052–H32/H34 ALUMINUM SHEET (QQ–A–250/8) 0.125" THICK
   (REF DART SPEC M5052H32S.125)
2) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) BREAK ALL SHARP EDGES 0.010 TO 0.020
5) ALL DIMENSIONS ARE IN INCHES